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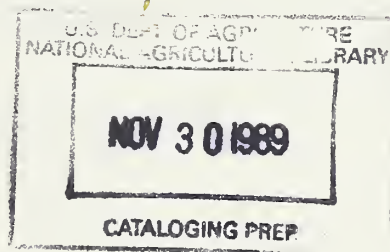
RECORD OF DECISION

USDA - FOREST SERVICE

**HARDROCK MINERAL LEASING FINAL ENVIRONMENTAL IMPACT
STATEMENT**

MARK TWAIN NATIONAL FOREST

SHANNON, OREGON, AND CARTER COUNTIES, MISSOURI

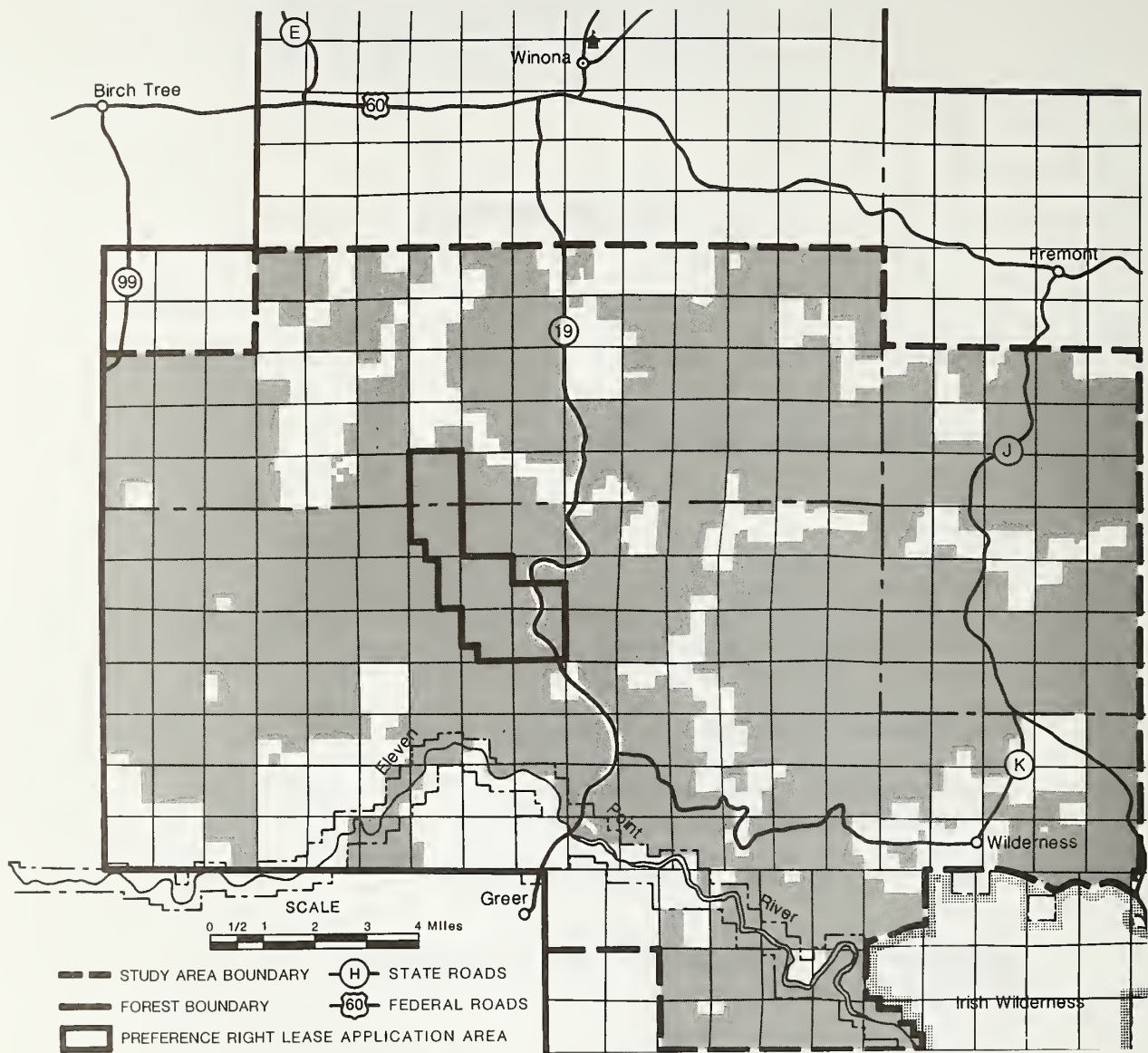


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EIS STUDY AREA AND SURROUNDING COMMUNITIES



■ NATIONAL FOREST LAND WITHIN EIS STUDY AREA



LOCATION MAP OF EIS STUDY AREA

HARDROCK MINERAL LEASING

U.S. DEPARTMENT OF AGRICULTURE • FOREST SERVICE

MARK TWAIN NATIONAL FOREST-MISSOURI

U.S. DEPARTMENT OF INTERIOR • BUREAU OF LAND MANAGEMENT

I. BACKGROUND

In November 1983, the USDA Forest Service received two mineral lease applications from the Bureau of Land Management (Bureau) to consider lead, zinc and associated mineral development underlying approximately 3,743 acres of the Mark Twain National Forest, Missouri.

In response to these applications, the Forest Service prepared a draft Environmental Assessment (EA), in accordance with the National Environmental Policy Act, and implementing regulations.

However, in October 1986, due to public comments in response to this draft EA and due to the anticipated need to address future mineral leasing applications, the Forest Service prepared a Draft Environmental Impact Statement (DEIS) in conjunction with the Bureau to determine the compatibility of mineral development activities with National Forest resources and uses. The 3,743-acre area was expanded to include an approximately 119,000-acre study area of National Forest System lands with reasonable potential for mineral leasing proposals.

Exploratory drilling has occurred for approximately 10 years within the entire 119,000 acre study area under prospecting permits issued by the Bureau. Under the prospecting regulations existing at that time, drilling and other exploratory work was conducted for 2 years with a 2 year extension if conditions warranted.

Approximately 250 prospecting holes have been drilled by mining companies. The core drilling activities have failed to adequately define the precise outline of a lead-zinc ore body. However, the Bureau has determined that there is evidence of sufficient mineralization to indicate that drilling has intersected ore horizons.

Presently, the only mining company maintaining an active interest in the area is Doe Run Company (the Company), the holder of interest in the two preference right mineral lease applications.

II. HARDROCK MINERAL LEASING PROCESS

The Hardrock Mineral Leasing process on the Mark Twain National Forest is administered jointly by the Forest Service and the Bureau. The Forest Service administers the surface resources and uses; the Bureau administers the exploration and production of federally-owned mineral resources. There are two possible points of the leasing process at which a Forest Service and/or Bureau decision is made. The first is whether or not to consent to and issue a prospecting permit. Second, if the permit is issued and a valuable discovery is made, then the two agencies must decide whether or not to consent to and issue a preference right lease.

Since the Bureau has confirmed that a mineral deposit has been discovered under the prospecting permits and the permittee has applied for two preference right leases (PRL), I must decide whether or not to consent to the leases. This decision is based on an environmental analysis and public comment. This analysis is a further basis for lease terms and conditions of occupancy of National Forest System land.

When consent is granted, the terms and conditions of occupancy are incorporated in the leases to provide appropriate protection of resource values and uses.

When consent to these leases is not granted or when the Bureau determines that issuance is not appropriate, then the area may be available for future prospecting.

III. DECISION:

I CONSENT TO THE ISSUANCE OF TWO LEASES (3,743 ACRES) FOR MINERAL EXPLORATION ONLY. DEVELOPMENT RIGHTS ARE DENIED PENDING RESOLUTION OF POTENTIAL SITE-SPECIFIC ENVIRONMENTAL CONCERNS SUCH AS, GROUNDWATER CONTAMINATION AND LOSS OF THREATENED AND ENDANGERED SPECIES HABITAT.

The Hardrock Mineral Leasing EIS identifies the potential for significant impacts from mining within the study area but can draw no conclusion as to site-specific impacts because a mine plan has not been submitted. Because of inadequate information a site-specific analysis cannot be conducted.

Typically, a National Forest can be zoned into categories of resource compatibility or sensitivity to mineral development activities. Conditions of occupancy can normally be developed to mitigate impacts from such activity. However, this particular study area is complex because of the karst topography, groundwater flow patterns, national scenic rivers and threatened and endangered species.

Unlike the surface resources of the Mark Twain National Forest that are well known as to kind and location, the Forest Service has no subsurface data of comparable specificity. I can, however, reasonably foresee impacts of mineral development activities, based on those occurring approximately 50 miles north of the study area in the "Viburnum Trend." These impacts include an unacceptable high risk of irreversible groundwater contamination from tailings and other mine waste disposal or the alteration of subsurface flow patterns from blockage or diversion by mine tunnels and shafts. Although these impacts may or may not be applicable to any given site within the study area, until further data are collected to indicate otherwise, development rights must be denied at this time.

A. Alternatives Considered

The Forest Service has carefully considered a full range of management options analyzed in the Hardrock Mineral Leasing EIS. The alternatives range from maximum resource protection to maximum development of mineral resources. These alternatives include:

1. **Alternative A (No Lease)**- provides maximum resource protection for non-mineral resources by prohibiting mineral development.
2. **Alternative B** - permits maximum mineral development by allowing standard mining practices currently used in the Viburnum Trend.
3. **Alternative C** - permits a level of mineral development consistent with the Mark Twain Land and Resource Management Plan (Forest Plan). It minimizes risk of impact to land character and visual quality by limiting the amount of land available for mineral development.

4. **Alternative D** - increases land available for mineral activities over that of Alternative C, while protecting water quality, areas of national significance and threatened and endangered species.
5. **Alternative E** - further increases the amount of land available for mineral development by changing a management area to permit road building and powerline construction.

Alternatives B, C, D and E permit both exploration and development activities to occur in varying degrees.

Alternative B would permit development on the entire 119,000-acre study area. The potential impacts of high development are well documented and include the risk of degrading water quality, loss of soil productivity, and possible impacts to special areas and areas of natural significance. Further, it would change the land character.

Alternative C would permit mineral production activities to occur in the northeastern portion of the study area (approximately 24,000 acres). This alternative would protect some of the visually sensitive travel routes or use areas; however, it would present risk of degrading water quality, water-related uses and land character within the concentrated portion of the study area. There is also increased risk in affecting the visual/recreation quality of The Eleven Point Scenic River and other frequently traveled routes.

Alternative D is similar to Alternative C except that more of the study area is available for mineral activities. Mining in this area would increase the risk that visual resources, water quality, water-related uses and land character would be affected.

Alternative E is similar to Alternative D except that the Forest Plan road density restriction for the 6.2 Management Area (11,354 acres), would be changed from 1 mile per square mile to 2 miles per square mile. This would require redesignating the 6.2 Management Area, which emphasizes motorized dispersed recreation (Forest Plan p.IV-175), to a 3.4 Management Area, which emphasizes wildlife habitat diversity with moderate to high production of other resources (Forest Plan p.IV-115). This redesignation is consistent with the Forest Plan (p.IV-183). The impacts of mining activities would increase the risk of degrading water quality, reducing water-related uses and changing land character.

I considered allowing exploration and development as described in Alternatives B, C, D and E but rejected them because development activities would likely result in unknown and potentially unacceptable impacts to the area's groundwater, threatened and endangered species habitat and water related uses. Groundwater studies must be conducted and alternative methods of mine waste disposal must be developed before I will consider consenting to development. The Preferred Alternative D addressed in the DEIS was not selected for this reason.

I considered Alternative A (No Lease). Under this Alternative, hardrock mineral leases would not be issued and no development or production would occur. Although this management option would provide maximum resource protection, it would also have the effect of discouraging all exploration activities. The "no lease" option would be unnecessarily restrictive. Potential mineral resources underlying the National Forest would not be known.

B. Environmentally Preferable Alternative: Alternative F; Preference Right Leases (PRL's) With No Guaranteed Development

It is my decision to adopt an alternative that was developed in response to comments. Alternative F permits exploration only on the two lease application areas. These two leases, with appropriate conditions of occupancy including a "no guaranteed development" stipulation, will allow further exploration and data collection. It will also allow us to respond to the nation's need to know what its mineral resources are, while at the same time, ensure that other resources and uses are protected.

Many of the public comments received on the Hardrock Mineral Leasing DEIS led to the development of Alternative F. This option will provide the same level of protection to surface resources as the no lease option, but it will not restrict exploration activities. Specifically, there is no guarantee that development will occur under the two leases even if significant mineral deposits are discovered. Further data must be collected and analyzed, including public comment, prior to considering whether or not development rights will be issued.

The PRL's with no guaranteed development will be administered in two phases. One phase will authorize the company to continue drilling activities within the lease area.

Reasonable conditions of occupancy will also be required of the Company. These conditions include collecting geologic data from drill holes for Forest Service and Bureau study.

The second phase deals with development rights. If, after further drilling, the lessee requests the right to produce minerals, additional site-specific environmental analyses and public involvement will be conducted to determine whether or not to authorize development.

IV. REASONS FOR DECISION

This decision to adopt Alternative F, by granting consent to the issuance of two preference right leases with no guaranteed development, is the direct result of public comment and interagency coordination throughout the environmental review process. As a result of this review, I have concluded that the risk of potential impacts from conventional mineral development is unacceptable.

Another factor of equal significance included consistency with the Forest Plan and other agency plans such as, the Fish and Wildlife Service's Grey Bat and Indiana Bat Recovery Plans, the Missouri Department of Conservation's Species Management Plans, and the National Park Service's Ozark River Use Management Plan.

A. Public Comment, Interagency Coordination and Identification of Issues

The Forest Service encouraged an active and thorough public involvement while developing the EA and DEIS. Numerous Federal, State and local agencies were informed and consulted. Several Federal and State agencies participated as cooperating agencies. These agencies included the Missouri Department of Conservation, U.S. Fish and Wildlife Service (FWS), National Park Service (NPS) and U.S. Army Corps of Engineers.

In addition to cooperating agencies, we consulted with the Missouri Department of Natural Resources (MO-DNR), U.S. Bureau of Mines, U.S. Environmental Protection Agency (EPA), Missouri Department of Economic Development, University of Missouri-Rolla (UMR), U.S. Geological Survey (USGS), Doe Run Corporation and Tom Aley, a private consultant. (See the Final EIS for a complete description of public participation.)

Following is a summary of major public issues, discussions of potential environmental impacts from mineral exploration and necessary mitigation measures to reduce or eliminate these impacts.

1. Water Quality/Quantity

The most significant issue of concern expressed during the public comment process was that mineral development activities could degrade water resources and create hazards which would affect public health and safety, wildlife, tourism and the general quality of life.

We are very familiar with these potential impacts, and based on several years of experience, are satisfied that the Forest Plan standards and guidelines provide reasonable resource protection.

Standards and guidelines within the study area include: no drilling within 100 feet of Brushy or Flat Ponds, or no drilling within 100 feet of perennial streams or known sink holes (this buffer zone expands to 50 feet plus 4 times the percent slope on slopes greater than 12 percent).

These standards and guidelines and other conditions will be written into the leases to ameliorate the impacts of drilling activities on the groundwater. The Company must agree to these express conditions of drilling and data collection and further acknowledge that activities beyond exploration may be precluded altogether.

2. Land Character

The public expressed concern that mineral development would cause unacceptable change in the lifestyles and experiences of the residents and visitors of the study area. The land provides an abundance of natural resources in a rugged, remote and scenic setting.

It is unlikely that mineral exploration will change the character of the land. There may be a few more temporary roads and several clearings (less than 1/4-acre in size). There may also be drilling crews at each site for 1 to 2 weeks.

The leases will contain stipulations which require the Company to close all permitted roads when they are no longer needed and to revegetate all cleared areas with native plants.

The Forest's staff has extensive experience in administering drilling activities within the Forest and has a demonstrated record in adequately addressing these environmental concerns.

3. Jobs, Economy and Lifestyle

Many individuals expressed interest that mineral activities could provide additional jobs and income in the local area. Others expressed concern that jobs and income related to mining would be temporary and could adversely affect lifestyles, tourism and recreation.

Based on past drilling activities within the National Forest, temporary jobs may be created as a result of exploration; however, we do not foresee significant impacts on the local job market, economy or standard of living. Further, though drilling and other

exploration activities will result in localized short duration disturbances, these activities will not significantly reduce the areas tourist or recreational values.

4. Threatened and Endangered Species

The public expressed concern that mineral activities could adversely impact habitats and populations of wildlife and plant species. Many of the species are Federally or State-listed threatened and endangered species (T&E).

The Forest Service consulted with the U.S. Fish and Wildlife Service (FWS) to determine whether mineral activities within the study area could jeopardize T&E species. Both agree that extensive information is known about the behavior and habitat of surface T&E species in the lease area; however, there is no such information on species that may exist on the subsurface. In the latter case, for example, there is the potential that drilling may intersect unknown caves and disturb cave habitat.

I am satisfied that the Forest Plan standards and guidelines relating to drilling in the lease area and lease stipulations adequately address potential impacts and will not threaten surface and subsurface species.

The Company will be required to agree to the following: "If listed species are suspected, located or discovered during exploration activities, all activity at that site will stop until an evaluation of the species can be made. Evaluations will be done by a biologist or botanist familiar with the specifics involved so positive identification can be made. Upon recommendation of the biologist or botanist, the activity will be relocated to a site where it does not disturb the species."

The Forest Service will notify the Fish and Wildlife Service and State agencies of activities that may affect listed species. This will help ensure that species and habitat will not be disturbed.

5. Lead Market

The public speculated about the current and anticipated future lead market conditions. Some questioned whether the nation needs additional lead sources. Others identified the need for stable long-term domestic lead supplies.

Presently, inadequate information exists concerning the extent of mineral resources under the lease areas. Exploration activities under the PRL's with no guaranteed development will provide valuable information when it is necessary to determine the need to develop mineral resources. Further, whether or not a lease will be profitable, or whether or not lead should or needs to be mined, is outside the scope of this decision.

6. Land Use Purpose

The public expressed the concern that mineral activities, especially development and production, are not consistent with the purpose for which these National Forest lands were acquired. Some of the public contends that mineral activities would either preclude the use and enjoyment of other Forest resources, or that the Forest Service and Bureau would not adequately protect these resources from mineral related impacts.

The primary purpose for acquiring these lands was to ensure the long term production of timber and to regulate the flow of navigable streams. Since acquisition of these and other lands, Congress has directed that National Forest System lands (except those designated for a single use such as wilderness) be administered and available for a variety of uses, including recreation, wildlife habitat and mineral exploration and development.

Mineral exploration activities authorized under the no guaranteed development stipulation will not interfere with the purpose for which these National Forest System lands were acquired or are being administered. In fact, mineral exploration and additional studies as described below, will greatly increase our understanding of a variety of natural resources.

Furthermore, I am confident that the Forest Service has fulfilled and will continue to fulfill its obligations under the National Environmental Policy Act and other laws applicable to management of National Forest resources and uses.

7. Areas of National Significance

The public expressed concern that mineral activities could adversely affect the Eleven Point National Scenic River, Ozark National Scenic Riverways, Irish Wilderness and Excluded Lands, administratively designated Cupola Pond, and other designated natural scenic or geologic areas. Drilling activities within sight or sound distance would unquestionably affect the quality of the recreational experience or "naturalness" of these special areas.

However, the two lease areas are over 1 1/2 miles from the Eleven Point River, nearly eight miles from the Irish Wilderness and Excluded Lands and over 15 miles from the Ozark Riverway. It is unlikely that recreationists within these areas would see or hear any of the exploration operations. Further, special areas, such as Brushy Pond and Flat Pond, within the 2 lease areas will be protected by not permitting disturbances to occur within 100 feet. Also, since only exploration drilling is permitted, there is little risk that any activities I am consenting to will affect groundwater flows or water quality. Therefore, it is unlikely that mineral exploration will adversely affect any of the special areas or detract from recreationists using these resources. To further reduce the risk of possible user conflict, during periods of high use, the lessee will not be allowed to drill on weekends or holidays from March 1 to Thanksgiving Day weekend.

B. Consistency With Mark Twain Land and Resource Management Plan and Plans of Others

This decision to consent to the issuance of two PRL's with no guaranteed development is consistent with the Mark Twain Land and Resource Management Plan (Forest Plan) developed and approved under the National Forest Management Act of 1976.

The Forest Plan defines 10- to 15-year direction for the Mark Twain National Forest. This direction includes 8 different management prescriptions for different tracts of land scattered across the forest. The plan identifies specific standards and guidelines that apply forest-wide and standards and guidelines unique to a specific management area.

The plan standards and guidelines define activities and mitigation measures to ensure specific activities are consistent with the overall management strategy. The forest-wide standards and guidelines permit surface disturbing exploration in areas where it is compatible with specific management area objectives (Forest Plan p. IV-71).

Both lease application areas are within a 3.4 management area. The management area prescription for a "...managed forest which emphasizes wildlife habitat diversity...consumptive and non-consumptive recreational opportunities...dispersed recreation in a roaded and not roaded environment...and moderate to high production of other resources such as timber products, recreation, forage and minerals" (Forest Plan p. IV-115).

The Forest Plan identifies specific management prescriptions and standards and guidelines for 3.4 Management Areas and Forest wide standards and guidelines. These standards and guidelines, along with the no guaranteed development stipulation are the basis for which I am consenting to exploration activities.

Each lease will contain a stipulation stating: "Operations under this lease will be consistent with the standards and guidelines found in the Mark Twain National Forest's Land and Resource Management Plan and are hereby incorporated into this lease in their entirety."

Any Forest Service and Bureau decision beyond the authorized exploration phase will result after further environmental review and evaluation consistent with the Forest Plan.

Federal, State, County and local plans were also thoroughly considered during the planning process in order to prevent conflicts and unnecessary duplication of effort. Some of these plans that I considered were the Fish and Wildlife Service's Grey Bat and Indiana Bat Recovery Plans, the Missouri Department of Conservation's Species Management Plans and the National Park Service's Ozark River Use Management Plan.

V. ADDITIONAL DATA NEEDED PRIOR TO CONSIDERATION OF DEVELOPMENT RIGHTS

There are two types of data that must be collected and analyzed prior to considering development rights under these two leases and prior to considering any other applications for rights to develop minerals within the study area.

The first type is an accurate description of the hydrogeologic environment including the recharge areas of the lower Current and Eleven Point Rivers and the various "downstream" uses that may be affected by changes in the quantity and quality of water. In an attempt to collect this data and coordinate study objectives, the Mark Twain Forest Supervisor, the Bureau, Cooperating Agencies, Missouri Department of Natural Resources and Doe Run Company met to discuss additional data needs. They concluded that during drilling, the lessee will collect core samples for specific geologic zones. Further, the FS and the Bureau will be notified of the lessee's drilling schedule so groundwater samples can be collected and water volumes measured. The specific geologic zones and groundwater parameters will be defined by a team of interested agencies and individuals. This team will be chaired by the Forest Supervisor. This team will conduct a comprehensive hydrogeologic study of this area.

The second type of information needed is the location and extent of potential development activities including mine sites, type of tailings disposal, powerline and haul road corridors, etc. Specific sites must be identified if and when a mine plan is submitted. Additional studies may be required either by the lessee or interested agencies to collect additional data.

Specifically, before I consent to the right to develop and before I can concur to a development plan, there must be geophysical and hydrological investigations that establish the absence of near-surface underground voids or engineering design that adequately addresses all concerns with potential impoundment leakage or failure.

Threatened and endangered species must be defined and studies conducted to determine whether or not development activities, such as mine dewatering, underground workings, or tailings disposal may affect this habitat.

VI. MONITORING AND ENFORCEMENT

This decision will be implemented immediately after the Notice of Availability of the EIS and Record of Decision appear in the Federal Register. However, actual exploration drilling cannot begin until the Bureau issues the leases and the lessee has an approved plan of operations. The Bureau of Land Management approves these plans with the concurrence of the Forest Service. The Mark Twain Forest Supervisor will review the operating plan to ensure that it includes all of the mitigation measures defined in this decision.

All drilling activities authorized by these leases will be closely monitored by both the Bureau and Forest Service. The Bureau is responsible for administering drilling activities and underground operations. The Forest Service is responsible for administering surface activities and coordinating uses. Specifically, the Forest Service District Ranger will inspect each proposed exploration plan to ensure that it is consistent with all lease terms prior to authorizing any disturbances. Further, the lessee must post a reclamation bond to ensure that the sites are reclaimed following completion of drilling. Either agency can close an operation if an emergency should arise. Operations will be inspected as necessary to ensure compliance with lease terms. Reclaimed sites will be inspected as completed. Most importantly, the lease stipulations and monitoring plan have been successfully used for years in this and other mining areas of Missouri.

VII. TERMS AND CONDITIONS OF CONSENT

The following stipulations will be attached to each of the two leases.

1. **"No Guaranteed Development"**

Pursuant to the provisions of the Act of March 4, 1917 (16 U.S.C. 520), Section 402 of Reorganization Plan No. 3 of July 16, 1946 (60 Stat. 1097, 1099; 5 U.S.C. Appendix), and the National Environmental Policy Act of 1969 (83 Stat. 852; 42 U.S.C. 4321 (Note)), as said authorities have been or may hereafter be amended, consent to the issuance of this preference right lease, as required by law and regulation (43 CFR 3501.2-6), is given subject to the express stipulation that no mineral development of any type is authorized hereby, nor may any such development occur on the lands subject to this lease without prior written approval of the Forest Service, United States Department of Agriculture and the preparation of appropriate environmental documentation, as required by the National Environmental Policy Act and implementing regulations, (40 CFR 1500-1508, 1508.10), the findings of which shall determine whether and under what terms and conditions, for the protection of the land involved, mineral development may take place.

2. The lessee must comply with the Forest Plan standards and guidelines such as:

- a. Not drill within 100 feet of perennial streams.
- b. Spread drill cuttings across the land but not within 100 feet of perennial or intermittent streams, known sink holes, or other groundwater recharge points.

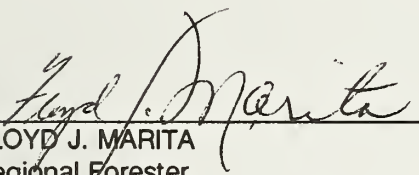
- c. Not drill on weekends or holidays between March 1 and Thanksgiving Day weekend.
- d. Not drill within 1/4 mile of known red-shouldered, sharp-shinned, or Cooper's hawk nests between March 1 and August 31.
- e. No disturbance within 100 feet of Brushy Pond or Flat Pond.
- f. Not occupy the surface where Federal and State listed, endangered, threatened or rare species are known to be located.
- g. Stop all activities if Federal or State listed, endangered, threatened or rare species are suspected, located or discovered during exploration activities. Evaluations will be done by a biologist or botanist familiar with the species involved so positive identification can be made. Upon recommendation of the biologist or botanist, the activity will be relocated to a site where it does not disturb the species.
- h. Not disturb the surface within 263 feet of designated cave entrances.
- i. Follow recommendations in the recovery plans for Grey and Indiana bats and **An Inventory and Evaluation of Cave Resources of Mark Twain National Forest**, Gardner & Gardner, 1982, for known bat caves. Manage all other caves in the study area according to recommendations in Gardner & Gardner, 1982. This may include gating, signing, or otherwise closing caves to visitors.
- j. Close and revegetate all disturbed areas when no longer needed.

VIII. RIGHT TO APPEAL

This decision is subject to appeal in accordance with the provisions of 36 CFR 211.18. Notice of appeal must be in writing and submitted to Floyd J. Marita, Regional Forester, Eastern Region, USDA Forest Service, 310 West Wisconsin Avenue, Milwaukee, Wisconsin 53203. The notice of appeal, a statement of reasons to support the appeal and any request for oral presentation must be filed within 45 days after the date of this decision or within 30 days after publication in the Federal Register that the Final Environmental Impact Statement has been filed, whichever is later.

An appeal of this decision does not halt our consent to the leases. However, a stay may be requested at any time while an appeal is pending.

No decisions on drilling plans are made in this document. Final decision on site-specific drilling projects will be made after appropriate analysis, public involvement, and documentation that meets National Environmental Policy Act requirements.


FLOYD J. MARITA
Regional Forester

November 3, 1988
Date

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